"The Openness Philosophy as a Knowledge Transfer tool in UK Higher Education Management Education Teaching and Learning Environments: The Knowledge Transfer Openness Matrix."

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Abstract

Openness is a novel concept that has been underexplored in UK Higher Education (HE) management education research. This paper considers the philosophy of Openness in a UK HE management education teaching and learning environment. The prime focus is where technology applications currently assist the Knowledge Transfer (KT) process for the HE teacher and learner. It discusses the philosophy of openness and considers its usefulness for UK HE management education teaching and learning environments, and how it may assist the Knowledge Transfer (KT) process for the HE learner. The paper investigates the feasibility of developing a Knowledge Transfer Openness Matrix (KTOM) to assist and support teaching and learning in UK HE.

Keywords

Knowledge Transfer, Openness Philosophy, UK Higher Education (HE) Management Education, Teaching and Learning.

Introduction

Technological advances over the past century have greatly enhanced our reach beyond our immediate human senses. We are on a technological curve the progression of which signals the increasing availability of systems that store and aid manipulation of data for human learning and Knowledge Transfer (KT) in organisations. With the emergence of the internet the landscape of Higher Education (HE) has changed. Teachers and learners in UK HE benefit from aided KT because it enhances their ability to experiment with ideas and share them in productive ways (Goh, 2002). In learning environments, the interactions between users and technology represent critical points of breakdown or achievement. Often, these interactions can be poor because of human error and limited availability of information (Nonanka and Takeuchi, 1995; Goh, 2002). Failure means that both learners and teachers stand unable to benefit and suffer low levels of KT (Bates, 2001). This paper discusses that the Openness is a philosophy could facilitate the current generation of teachers and learners in UK HE, by sharing the utility of knowledge through a Knowledge Transfer Openness Matrix (KTOM). In the HE sector this approach represents institutions as environments that mediate generatively the transfer of knowledge. This involves systems that are open and can enable learning for both teaching and learning.

UK HE management education

Background of teaching and learning through internet based technology

Various authors (Kalkota and Whinston, 1996; Turban et al, 2000; Owens and Price, 2010) have identified that the Internet offers unique opportunities in both teaching and learning applications. A common theme that appears to have changed little (Ackoff, 1989; Dearing, 1997; Conaway *et al*, 2005; Hasanzadeh *et al*, 2012) is that students are very keen on using the Internet for entertainment, peer communication, and for secondary sources of data. Researchers (Lissenburgh, 1999; Dobozy, 2012) claim that, in some cases, students assume the information does not exist if it is not available on the Internet.

Although students are familiar with Internet technology, some researchers (Gladstone, 2000; Hannon and D'Netto, 2007) argue that students often lack the specific skills that would enable them to use it more effectively. It could be that students are not clear of the benefits from the outset (Ashraf, 2009). A Student Expectations and Perceptions survey carried out in

2012 reported that, whilst many current and prospective students are comfortable with the learning technologies both used and available, this new generation of students like to see the concrete benefits of technology usage and implementation; for example that work is recognised and contributes to final grade assessment (Kandiko and Mawer, 2012).

Internet utilisation in the UK

The 2009 Oxford Internet survey reports that the top four reasons people in the UK accessed the Internet to go on-line were:

1. Check emails.
2. Product information search.
3. Browse to Buy on line.
4. Fact finding, through search engines such as Google, Wikipedia etc.

Therefore, with the rapid advance of on-line learning technologies (Kunnari and Ilomaki, 2016) it is perhaps interesting that there is no clear correlation to on-line learning at 19th place at just over 20%. Unfortunately (from an e-learning perspective), even use of the internet to download to watch videos and listen to the radio achieved an almost ten percent better score than distance learning. Another disappointing finding for learning purposes is that twenty percent read less due to the advent of the Internet. This suggests that perhaps internet is not a perfect substitute for knowledge, and that lecturers need to encourage both means to foster both more creativity and utilisation. Subsequently, as the Openness philosophy is a novel concept that has been underexplored in UK HE, this paper starts to address if the development of a KTOM could help foster this creativity and utilisation.

A summary of the twenty main reasons people access the internet is illustrated in table 1.

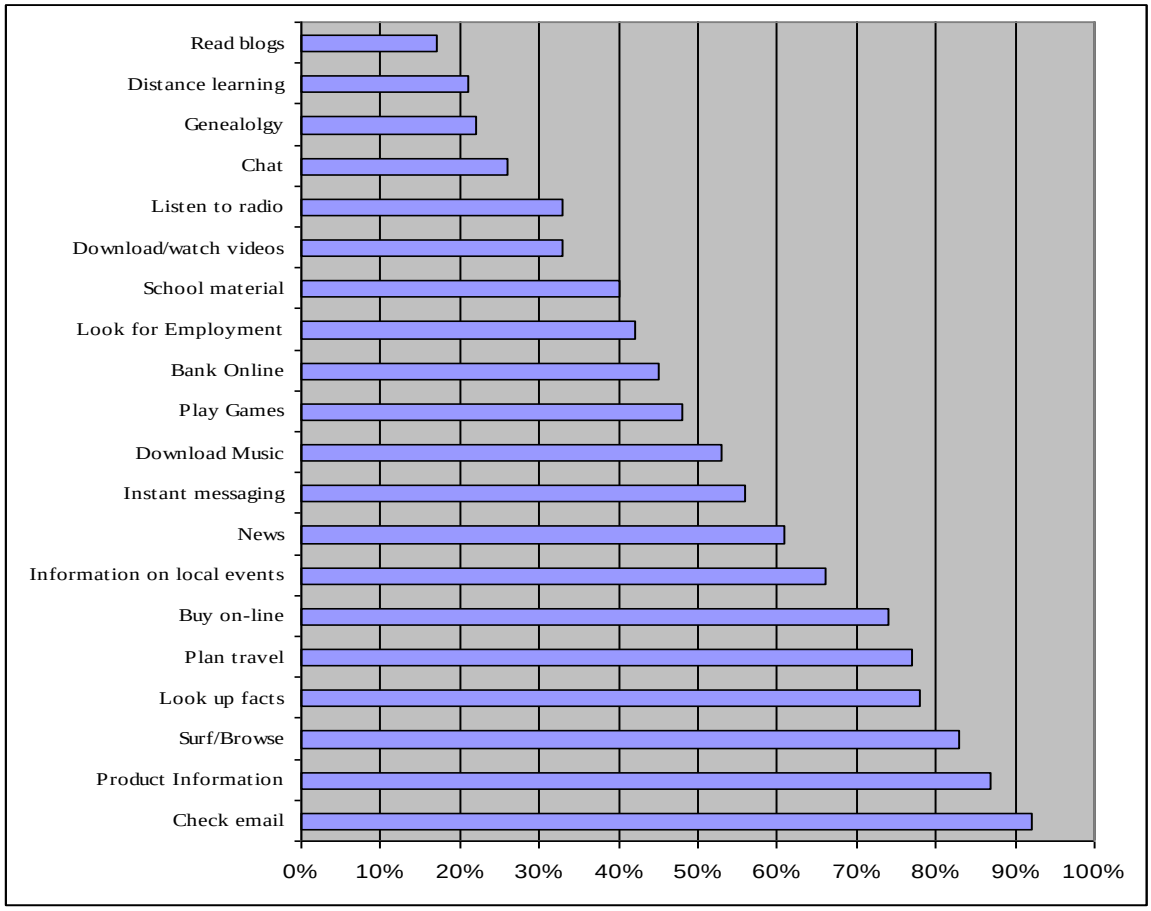

Table 1. Top twenty reasons why we go online in the UK. (Oxford Internet Survey, 2009)

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Understanding Knowledge Transfer

Various researchers (Stewart, 1977; Ratcliffe, 1997; Jackson; 2002; Mougin *et al*, 2015) over the years have the common view that KM is often used to describe the management of knowledge within the organisation and this includes Knowledge Transfer (KT) within the organisation.

Bates (2001) claims that the value of KT relates directly to the effectiveness with which the transferred knowledge enables educators within the establishment to deal with the current situations and effectively envision and create their future. People are the most critical factor in KT (Denning, 2011). People create knowledge, share knowledge, learn, and use knowledge to complete tasks. KT increases the ability of individuals to deal with new situations, events, information, and context. Many barriers (Nonanka and Takeuchi, 1995; Goh, 2002) to effective KT emerge because the process relies heavily on human interactions and relationships that are not designed into the establishment's culture

e-Learning Knowledge Transfer

E-Learning can be perceived as a key enabler to Knowledge Management (KM) and Knowledge Transfer (KT) within HE sector (Owens and Floyd, 2007).

The successful introduction and implementation of e-Learning into existing and new units at Higher Education Institutes (HEI's) can be heavily influenced by the institution's ability and effectiveness, in delivering knowledge based products and managing any number of strategic issues that may need to be addressed as part of the successful development of KT though e-Learning products (Conaway *et* al, 2005; Hanna, 2016; Owens and Price 2010).

Laurillard (2008) suggests the strategic issues of significance when considering e-Learning as a tool for KT through traditional and independent study within the HE sector are:

- Identifying the customer service imperative for each stakeholder or institute involved in an e-Learning initiative.
- Appreciating the advantages and disadvantages of incremental KT through e-Learning in HE.
- Understanding the value of national, integrated approaches to e-Learning and KT in HE.
- Understanding the need to develop user support systems, to underpin e-Learning and KT developments.
- Working within technological and financial limitations associated with HEI's
- Successful internationalisation of University Education.

The Openness Philosophy and its Application to UK HE Management Education Environments

In UK HE management education environments the concept of openness remains somewhat indistinct and not clearly defined (Baker, 2012). There is limited application of this concept in the field. However, this can provide researchers with flexibility in shaping the concept for application to a variety disciplines. Overall, openness in science means that data should be shared with the wider scientific community (McComas, 2014:95). This paper suggests that epistemically, openness of a system is knowable by looking at its degree of indeterminacy, transparency and accessibility.

Indeterminacy in UK HE Management Education Environments

Indeterminacy suggests that a system does not have sufficiently rigid boundaries and discrete variables such that its development is wholly determined in advance (Stein, 1991). This characterizes most systems that are used by humans, which are open systems consisting variables not wholly determined in advance. For example, if a student uses the software Microsoft Excel then they engages with a system that provides tools. The behaviour of this system is partly determined through its features and rules, and in part through the user's behaviour. The system is open in the sense that its behaviour depends to some extent on the unpredictable behaviour of the use. This builds through trial and error loops that provide feedback based learning. Subsequently, this openness in this sense provides the flexibility for use on numerous tasks for learning and developing solutions.

Transparency in UK HE Management Education Environments

Transparency of a system is the degree to which its components are visible in their workings which can help align perspectives of users (Benkler, 2006). In this instance, research (Peters and Roberts, 2012: 45) suggests the degree of transparency of MS excel is based on two points:

1. Its functions.
2. What the user brings to the environment in terms of experience, knowledge, expertise, interest, task, goals, and time.

They discuss that openness of technology must be coupled with open-mindedness of users and collaborators.

Accessibility in UK HE Management Education Environments

In contemporary organisations the accessibility of a system is enhanced with virtual environments that provide storage, processing, representation and transmission of data. This has leveraged the accessibility of ideas over computerised platforms, which can often talk to each other. However, openness is not a new idea. In the early part of the 20th century the philosopher Martin Heidegger proposed openness as a non-intentional or pre-intentional state of being in the world (Fuenmayor, 1991). The term non-intentional is the antithesis of the term intentionality; the latter is a central feature of human consciousness whereby we walk about in the world always holding beliefs, emotions, imaginations, and feelings that are directed towards things. For example, openness of a learner in an HE environment is the deliberate letting go of pre-conceptions and starting with a tabula rasa type psychology. Through conversations teachers and learners attempt to access and represent each other's narratives (Dahlberg *et al*, 2003). This applies more easily to electronic technology then to human users. This could primarily be because syntax, rules, goals and processing in technological systems is often easier to delete or modify. Overall, the application of openness might address accessibility of systems of technology, users, and their cooperation.

Openness in UK HE Management Education Environments.

In regard to the above picture of openness, in an HE context, we propose that in so far as indeterminacy, transparency and accessibility are applied, this represents behaviour of

systems between concentric levels at which they operate and cooperate. In HE learning environments system levels can be (Baker, 2012) discernible at the sub-component, component or actor, group, organizational, and the social level. These concentrically coupled levels at which systems behave can themselves display openness at the intra-level (systems in a level) and the inter-level(across systems behaving within and between levels). Applied to the UK HE in management education environment this provides a diagnostic matrix to illustrate the degree of openness of a system.

The Knowledge Transfer Openness Matrix (KTOM)

The Knowledge Transfer Openness Matrix (KTOM) illustrated in figure 1 provides six openness scenarios for teachers and learners in UK HE management education environments. Each one of these can be in different scenarios (i.e. perspectives) when facing the same system.

Scenario 1: Chaos

The first scenario occurs in learning interaction whereby only indeterminacy is present. Such a system is chaotic in the sense that it is not predictable, however does not provide the other features. For example, the behaviour of the whole world wide web is indeterminate for a human user (Carr, 2012:205).

Scenario 2: Interpretable Chaos

Systems with indeterminacy and transparency are independent of user accessibility but remain observable in their non-deterministic behaviour. These exhibit interpretable chaos. For example, this might be the use of online software that distributes information and can be visually seen such as an algorithm based blackboard learning environment. From the user's viewpoint, this might be accessible to educators, but not accessible to students.

Scenario 3: Openness

There is complete openness whereby indeterminacy, transparency and accessibility are all featured in the system. This is an idealistic state (Stein, 1991; McComas, 2014), albeit one that any system can aim towards. Because the system is indeterminate it is an open system

and this compromises transparency of behaviour, but not the transparency of system rules. In this instance, accessibility is bounded by user capacity to learn (Peters and Roberts, 2012). Systems close to this scenario would be machine to machine learning systems, used extensively outside pedagogical environments and in the energy market (Fadullah et al, 2011). Applying this to machine-human interaction is a fertile prospect.

Openness Scenarios for Teachers and Learners in UK HE management education environments	Indeterminacy	Transparency	Accessibility
Scenario 1: Chaos	●		
Scenario 2: Interpretable Chaos	●	●	
Scenario 3: Openness	●	●	●
Scenario 4: Randomness	●		●
Scenario 5: Closed Environment		●	●
Scenario 6: Rote system			●

Figure 1. TheKnowledge Transfer Openness Matrix (KTOM)

Scenario 4: Randomness

This is a system with indeterminacy and accessibility displays randomness because it is not observable by virtue of lack of patterns. However, it is tacitly received by the learner who has access to partly determine its behaviour through rules or functions of the system. An example is a time series analysis conducted by a computer science student whereby the system/software rules and functions are accessible, the results of input equations are non-deterministic, and after some iteration's transparency is lost in terms of system behaviour (Fuenmayor1991; McComas, 2104). A more social example is a one to one conversation between a teacher and student. The conversation is not determinable if the topic of the conversation and rules of the language are known. The conversation can lack transparency in by virtue of access to how differing perspectives deliver confusing conceptions throughout the conversation (Peters and Roberts, 2012).

Scenario 5: Closed Environment

This supports a transparent and accessible learning system that is not indeterminate. This is a closed system found in learning games with definite rules, syntax and a set of discernible patterns; we call this a closed learning environment.

Scenario 6: Rote system

Finally, there is the scenario where a system is open to the extent that it is accessible, but neither is it indeterminate nor transparent. We label this a single-loop learning system based on Argyris (1976). This is because learning takes place with content; however, the methods of learning are not transparent for the user.

Discussion and Early Considerations

As previously discussed Openness is a novel concept that has limited research and application available in UK Higher Education (HE) management education. This paper has offered an preliminary investigation that considers the philosophy of Openness in a UK HE management education teaching and learning environment. It has discussed the philosophy of openness as a KT tool aid UK HE management education teaching and learning technology applications. The early focus being to investigate if the feasibility of developing a Knowledge Transfer Openness Matrix (KTOM) could assist and support the learning process and utlisation.

The KTOM appears to assist with the identification of systems that might facilitate or inhibit knowledge transfer across UK HE management education teaching and learning environments. This could be because KT predominantly depends on co-operation and collaboration between users (Goh, 2002:25), which varies across the types of systems identified in the KTOM. This is very early stage investigation offering an alternative approach that considers the real issue as whether a KTOM could help new generation of students see the concrete benefits of technology usage and implementation.

The current and future challenge is to recognise the complexities and nuances of the modern context, and seek to create a UK HE teaching and learning environment that recognises the need to ensure academic relationships are as equal as possible. No academic system can exist by itself in the 21st century of HE.

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